



Control Number: 50594



Item Number: 29

Addendum StartPage: 0



Public Utility Commission of Texas

**Five-Year Report**

**Required by 16 Texas Admin. Code § 25.97(e)**

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PUBLIC UTILITY COMMISSION  
FILING CLERK

**PROJECT NO.** 50594

**AFFECTED ENTITY:** CITY OF FLOYDADA

**General Information**

Pursuant to 16 Texas Admin. Code § 25.97(e)(1), not later than May 1 every five years, each affected entity that owns or operates overhead transmission facilities greater than 60 kilovolts must submit this report. The first report must be submitted not later than May 1, 2020.

**Instructions**

Answer all questions, fill-in all blanks, and have the report notarized in the Affidavit.

**Affidavit**

A representative of the affected entity must swear to and affirm the truthfulness, correctness, and completeness of the information provided by attaching a signed and notarized copy of the Affidavit provided with this form.

**Filing Instructions**

Submit four copies (an original and three copies) of the completed form and signed and notarized Affidavit to:

Central Records Filing Clerk  
Public Utility Commission of Texas  
1701 N. Congress Avenue  
P.O. Box 13326  
Austin, Texas 78711-3326  
Telephone: (512) 936-7180

**1. Historical five-year reporting period:** 2014-2019

What percentage of overhead transmission facilities greater than 60 kilovolts did you inspect for compliance with the National Electric Safety Code (NESC) relating to vertical clearance in the historical five-year reporting period?

Visually inspected 80% of 3 miles of transmission line, but never documented.

**2. Future five-year reporting period:** 2020-2025

What percentage of overhead transmission facilities greater than 60 kilovolts do you anticipate you will inspect for compliance with the NESC relating to vertical clearance during the future five-year reporting period beginning on January 1 of the year in which this report is submitted?

100%, and document time, date and any hazards or violations.

Affected Entity: CITY OF FLOYDADA

PROJECT NO. 50594

## AFFIDAVIT

I swear or affirm that I have personal knowledge of the facts stated in this report or am relying on people with personal knowledge, that I am competent to testify to them, and that I have the authority to submit this report on behalf of the affected entity. I further swear or affirm that all statements made in this report are true, correct, and complete.

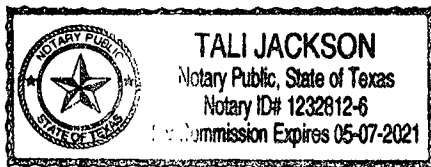
RP  
Signature

RAY PEREZ  
Printed Name

ELECTRIC SUPERINTENDENT  
Job Title

CITY OF FLOYDADA  
Name of Affected Entity

Sworn and subscribed before me this 2nd day of April, 2020  
Month Year



Tali Jackson  
Notary Public in and For the State of Texas  
My commission expires on 05-07-2021

## 2017 NESC Vertical Clearances

### Railways

Neutral	23.5 ft
TPX	24 ft
Dist. Primary	26.5 ft

### Fields, Orchards, Forest, Etc.

Neutral and Span Guy	15.5 ft
TPX	16 ft
Dist. Primary	18.5 ft

### Highways – TX Administrative Code

Communications and Cable TV	18 ft
Electrical Lines	22 ft

### Pedestrians Only

Neutral and Span Guy	9.5 ft
TPX	12 ft
Dist. Primary	14.5 ft

### Trucks Over 8 ft.

Neutral and Span Guys	15.5 ft
TPX	16 ft
Dist. Primary	18.5 ft

### Water – No Sailboat

Neutral and Span Guy	14 ft
TPX	14.5 ft
Dist. Primary	17 ft

Waterways Suitable for Sailing		Rigging or Launching Areas
Less Than 20 Acres		
Neutral and Span Guy	17.5 ft	22.5 ft
TPX	18 ft	23 ft
Dist. Primary	20.5 ft	25.5 ft
20 to 200 Acres		
Neutral and Span Guy	25.5 ft	30.5 ft
TPX	26 ft	31 ft
Dist. Primary	28.5 ft	33.5 ft
200 to 2,000 Acres		
Neutral and Span Guy	31.5 ft	36.5 ft
TPX	32 ft	37 ft
Dist. Primary	34.5 ft	39.5 ft
Over 2,000 Acres		
Neutral and Span Guy	37.5 ft	42.5 ft
TPX	38 ft	43 ft
Dist. Primary	40.5 ft	45.5 ft

## **Requirements – Training Texas Utilities Code**

### **SECTION. 38.102. REPORTS ON SAFETY PROCESSES AND INSPECTIONS**

- (a) Each electric utility, municipally owned utility, and electric cooperative that owns or operates overhead transmission or distribution assets shall submit to the commission a report that includes:
  - (1) a summary description of hazard recognition training documents provided by the utility or electric cooperative to its employees related to overhead transmission and distribution facilities; and
  - (2) a summary description of training programs provided to employees by the utility or electric cooperative related to the National Electrical Safety Code for the construction of electric transmission and distribution lines.
- (b) An electric utility, municipally owned utility, or electric cooperative shall submit an updated report not later than the 30th day after the date the utility or electric cooperative finalizes a material change to a document or program included in a report submitted under Subsection (a).
- (c) Not later than May 1 every five years, each electric utility, municipally owned utility, and electric cooperative that owns or operates overhead transmission facilities greater than 60 kilovolts shall submit to the commission a report for the preceding five-year period ending on December 31 of the preceding calendar year that includes:
  - (1) the percentage of overhead transmission facilities greater than 60 kilovolts inspected for compliance with the National Electrical Safety Code relating to vertical clearance in the reporting period; and
  - (2) the percentage of the overhead transmission facilities greater than 60 kilovolts anticipated to be inspected for compliance with the National Electrical Safety Code relating to vertical clearance during the five-year period beginning on January 1 of the year in which the report is submitted.
- (d) Subject to Subsection (f), not later than May 1 of each year, each electric utility, municipally owned utility, or electric cooperative that owns or operates overhead transmission facilities greater than 60 kilovolts shall submit to the commission a report on the overhead transmission facilities for the preceding calendar year that includes information regarding:
  - (1) the number of identified occurrences of noncompliance with Section 38.004 regarding the vertical clearance requirements of the National Electrical Safety Code for overhead transmission facilities;
  - (2) whether the utility or electric cooperative has actual knowledge that any portion of the utility's or electric cooperative's transmission system is not in compliance with Section 38.004 regarding the vertical clearance requirements of the National Electrical Safety Code; and
  - (3) whether the utility or electric cooperative has actual knowledge of violations of easement agreements with the United States Army Corps of Engineers relating to Section 38.004



regarding the vertical clearance requirements of the National Electrical Safety Code for overhead transmission facilities.

**Note: U S Army Corps of Engineers have jurisdiction over all navigable water in the United States. Their clearance requirements and easement agreements are usually stricter than the NESC but the more stringent regulation of the two shall be conformed to.**

- (e) Subject to Subsection (f), not later than May 1 of each year, each electric utility, municipally owned utility, or electric cooperative that owns or operates overhead transmission facilities greater than 60 kilovolts or distribution facilities greater than 1 kilovolt shall submit to the commission a report for the preceding calendar year that includes:
  - (1) the number of fatalities or injuries of individuals other than employees, contractors, or other persons qualified to work in proximity to overhead high voltage lines involving transmission or distribution assets related to noncompliance with the requirements of Section 38.004; and
  - (2) a description of corrective actions taken or planned to prevent the reoccurrence of fatalities or injuries described by Subdivision (1).
- (f) Violations resulting from, and incidents, fatalities, or injuries attributable to a violation resulting from, a natural disaster, weather event, or man-made act or force outside of a utility's or electric cooperative's control are not required to be included in the portions of the reports required under Subsections (d) and (e).
- (g) Not later than September 1, each year the commission shall make the reports publicly available on the commission's Internet website.
- (h) A report, and any required information contained in a report, made on an incident or violation under this section is not admissible in a civil or criminal proceeding against the electric utility, municipally owned utility, or electric cooperative, or the utility's or electric cooperative's employees, directors, or officers. The commission may otherwise take enforcement actions under the commission's authority.

#### **SECTION 38.004. MINIMUM CLEARANCE STANDARD**

- (a) **Notwithstanding any other law**, a transmission or distribution line owned by an electric utility or an electric cooperative must be constructed, operated, and maintained, as to clearances, in the manner described by the National Electrical Safety Code Standard ANSI (c)(2), as adopted by the American National Safety Institute and in effect at the time of construction.

**Means that even if something is written that is opposite in meaning to the provision; the provision will still apply. It is a formal way of saying that the provision will ALWAYS apply. In this case, even if the act or any other law says something opposed to that provision, it doesn't matter.**

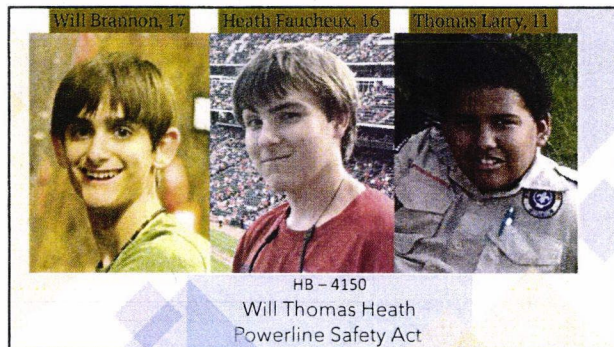
- (b) An electric utility, municipally owned utility, or electric cooperative shall meet the minimum clearance requirements specified in Rule 232 of the National Electrical Safety Code Standard ANSI (c)(2) in the construction of any transmission or distribution line over all of the 178 lakes listed in this section.



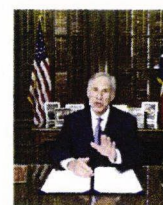
## Lakes Listed In Section 38.004

- |                         |                          |                          |
|-------------------------|--------------------------|--------------------------|
| 1. Abilene              | 44. Clyde                | 87. Jacksonville         |
| 2. Alan Henry           | 45. Coffee Mill          | 88. J. B. Thomas         |
| 3. Alvarado Park        | 46. Coleman              | 89. Joe Pool             |
| 4. Amistad              | 47. Coleta Creek         | 90. Kemp                 |
| 5. Amon G. Carter       | 48. Colorado City        | 91. Kickapoo             |
| 6. Aquilla              | 49. Conroe               | 92. Kirby                |
| 7. Arlington            | 50. Cooper               | 93. Kurth                |
| 8. Arrowhead            | 51. Corpus Christi       | 94. Lady Bird            |
| 9. Athens               | 52. Crook                | 95. Lake O' The Pines    |
| 10. Austin              | 53. Cypress Springs      | 96. Lavon                |
| 11. Averhoff            | 54. Daniel               | 97. Leon                 |
| 12. B. A. Steinhagen    | 55. Davy Crockett        | 98. Lewisville           |
| 13. Bachman             | 56. Diversion            | 99. Limestone            |
| 14. Balmorhea           | 57. Dunlap               | 100. Livingston          |
| 15. Bardwell            | 58. Eagle Mountain       | 101. Lone Star           |
| 16. Bastrop             | 59. E. V. Spence         | 102. Lost Creek          |
| 17. Baylor Creek        | 60. Fairfield            | 103. Lyndon B. Johnson   |
| 18. Belton              | 61. Falcon               | 104. Mackenzie           |
| 19. Benbrook            | 62. Fayette County       | 105. Marble Falls        |
| 20. Big Creek           | 63. Findley              | 106. Marine Creek        |
| 21. Bob Sandlin         | 64. Fork                 | 107. Martin Creek        |
| 22. Bonham              | 65. Ft Parker State Park | 108. McClellan           |
| 23. Bonham State Park   | 66. Ft Phantom Hill      | 109. Medina              |
| 24. Brady Creek         | 67. Fryer                | 110. Meredith            |
| 25. Brandy Branch       | 68. Georgetown           | 111. Meridian State Park |
| 26. Braunig             | 69. Gibbons Creek        | 112. Mexia               |
| 27. Brazos              | 70. Gilmer               | 113. Mill Creek          |
| 28. Bridgeport          | 71. Gladewater           | 114. Millers Creek       |
| 29. Brownwood           | 72. Gonzales             | 115. Mineral Wells       |
| 30. Bryan               | 73. Graham               | 116. Monticello          |
| 31. Bryson              | 74. Granbury             | 117. Moss                |
| 32. Buchanan            | 75. Granger              | 118. Mountain Creek      |
| 33. Buffalo Creek       | 76. Grapevine            | 119. Muenster            |
| 34. Buffalo Springs     | 77. Greenbelt            | 120. Murvaul             |
| 35. Caddo               | 78. Halbert              | 121. Nacogdoches         |
| 36. Calaveras           | 79. Hawkins              | 122. Naconiche           |
| 37. Canyon              | 80. Holbrook             | 123. Nasworthy           |
| 38. Casa Blanca         | 81. Hords Creek          | 124. Navarro Mills       |
| 39. Cedar Creek         | 82. Houston              | 125. New Ballinger       |
| 40. Champion Creek      | 83. Houston County       | 126. Nocona              |
| 41. Choke Canyon        | 84. Hubbard Creek        | 127. Oak Creek           |
| 42. Cisco               | 85. Inks                 | 128. O. C. Fisher        |
| 43. Cleburne State Park | 86. Jacksboro            | 129. O. H. Ivie          |

130. Palestine	149. Squaw Creek	168. Welsh
131. Palo Duro	150. Stamford	169. Wheeler Branch
132. Palo Pinto	151. Stillhouse Hollow	170. White River
133. Pat Cleburne	152. Striker	171. White Rock
134. Pat Mayse	153. Sulphur Springs	172. Whitney
135. Pinkston	154. Sweetwater	173. Wichita
136. Placid	155. Tawakoni	174. Winnsboro
137. Possum Kingdom	156. Texana	175. Winters-Elm Creek
138. Proctor	157. Texoma	176. Wood
139. Purtil Creek	158. Timpson	177. Worth
140. Quitman	159. Toledo Bend	178. Wright Patman
141. Raven	160. Tradinghouse Creek	
142. Ray Hubbard	161. Travis	
143. Ray Roberts	162. Twin Buttes	
144. Red Bluff	163. Tyler	
145. Richland-Chambers	164. Waco	
146. Sam Rayburn	165. Walter E. Long	
147. Sheldon	166. Waxahachie	
148. Somerville	167. Weatherford	



• Texas Governor Greg Abbott signed the William Thomas Heath Power Line Safety Act, HB 4150 into law on June 14, 2019, with the Act becoming effective September 1, 2019.



• The Act requires utilities to submit various reports on training, inspections, compliance, and incidents. The first report is due by May 1, 2020.

### Utilities Required to Train & Report

There are three categories of electric utilities required to submit various reports to the Texas Public Utilities Commission.

1. Electric utilities with distribution facilities only.
2. Electric utilities with transmission facilities only.
3. Electric utilities with both distribution and transmission facilities.

Some of these reports will be annual and some on a 5 year reporting schedule. Again, the first of these reports are due May 1, 2020.

### Requirements – Training Sec. 38.102. REPORTS ON SAFETY PROCESSES AND INSPECTIONS.

What does It Say?

1. Submit Summary of Hazard Recognition Training for Employees
2. Submit Summary of NESC Training for Employees
3. Submit within 30 days any Changes to Report or Program

### Requirements – Training Sec 38 102. REPORTS ON SAFETY PROCESSES AND INSPECTIONS.

What does It Say?

- 1 For Utilities Owning or Operating Transmission above 60 KV Every 5 years a Report Must be Submitted to the Commission No later than May 1<sup>st</sup>.
- 2 Report must Include the Percent of the Transmission System Inspected in the Period Relating to NESC Vertical Clearances
- 3 The Percent Anticipated to be Inspected in the Period Relating to NESC Vertical Clearance

### Requirements – Training Sec 38 102 REPORTS ON SAFETY PROCESSES AND INSPECTIONS.

For Utilities Owning or Operating Transmission above 60 KV

- 1 Every year by May 1<sup>st</sup> a Report Including the Number of Noncompliance Occurrences Identified and Whether They Have Actual Knowledge of Any Portions Which are Noncompliant with NESC Vertical Clearances
- 2 Whether They Have Actual Knowledge of Any Violations of Easement Agreements with U S. Corp of Engineers

Note U S Army Corps of Engineers have jurisdiction over all navigable water in the United States Their clearance requirements and easement agreements are usually more stringent than the NESC but the more stringent regulation of the two shall be conformed to

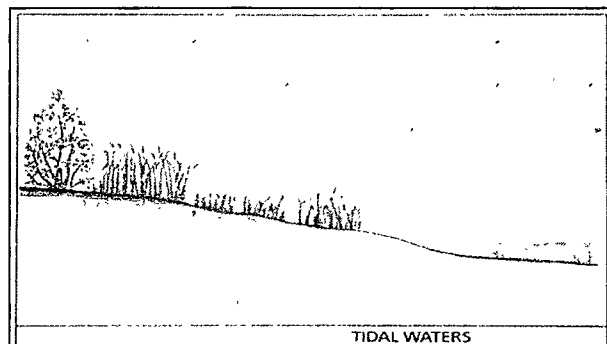


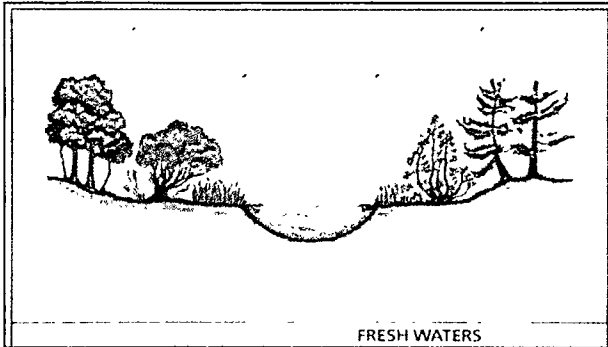
US Army Corps  
of Engineers

Recognition of Army Corps of Engineers Authority is in

### What are the Limits of the Corps Jurisdiction?

- The Corps regulations broadly define two important terms, "waters of the United States" for the purpose of Section 404 of the Clean Water Act, and "navigable waters of the United States" for Section 10 of the Rivers and Harbors Act
- Section 404 of the Clean Water Act defines the landward limit of jurisdiction as the high tide line in tidal waters and the ordinary high water mark as the limit in non-tidal waters





### Requirements – Reporting Sec 38 102 REPORTS ON SAFETY PROCESSES AND INSPECTIONS

#### What Does It Say?

Every System Operating Above 60KV Transmission and Above 1KV Distribution Must Submit a Report Each Year No Later than May 1<sup>st</sup>

Including the Number of Fatalities or Injuries to Nonqualified Persons Involving Noncompliant Portions of the System

And a Description of Corrective Actions Taken or Planned to Prevent the Reoccurrence of Fatalities or Injuries

### Requirements – Reporting Sec 38 102 REPORTS ON SAFETY PROCESSES AND INSPECTIONS.

Violations and Incidents Resulting from a Natural Disaster, Weather Event, or Force Outside of a Utility's Control are not Required to be Included in the Reports

By September 1, Each Year the Commission Shall Make the Reports Publicly Available on the Commission's Internet Website

The Report, is not Admissible in a Civil or Criminal Proceeding Against the Electric Utility or the Utility's Employees, Directors, or Officers

The Commission May Otherwise Take Enforcement Actions Under The Commission's Authority

### Understanding Chapter 38 Section 38.004 of the Texas Utilities Code: Minimum Clearance Standard

#### Sec 38 004 MINIMUM CLEARANCE STANDARD

(a) Notwithstanding Any Other Law, A Transmission Or Distribution Line Owned by An Electric Utility Must Be Constructed, Operated, and Maintained, as to Clearances, in the Manner Described by the National Electrical Safety Code Standard ANSI (C)2, as Adopted by the American National Safety Institute and in Effect at the Time of Construction

**Means** that even if something is written that is opposite in meaning to the provision, the provision will still apply. It is a formal way of saying that the provision will ALWAYS apply. In this case, even if the act or any other law says something opposed to that provision, it doesn't matter.

# Understanding Chapter 38 Section 38.004 of the Texas Utilities Code: Minimum Clearance Standard

Sec. 38.004. MINIMUM CLEARANCE STANDARD.

(b) Electric Utilities, Shall Meet The Minimum Clearance Requirements Specified In Rule 232 of the National Electrical Safety Code Standard ANSI (c)(2) in the Construction of any Transmission or Distribution Line Over All of The 178 Lakes Listed in This Section. (Hand-Out)

# CHAPTER 38. REGULATION OF ELECTRIC SERVICES SUBCHAPTER A. STANDARDS

Sec. 38.001. GENERAL STANDARD.

An Electric Utility Shall Furnish Service, Instrumentalities, and Facilities that are Safe, Adequate, Efficient, and Reasonable.

Meeting This Standard Means That Utilities Must Maintain Their System's Infrastructure in a Safe, Reliable Condition for the Public, as Well as for Employees.



## What is a Hazard?

A Hazard Is An Unsafe Act Or Unsafe Condition With Potential To Cause Illness, Injury, Or Death To People Or Animals, Damage To Property, Damage To The Environment, Or A Combination Of These.

### Hazard Recognition

Designed to Identify, Report, Repair, Eliminate and Document any Potential Hazard on the Utilities' Infrastructure.

### Reporting Hazardous Conditions

When A Hazardous Condition Is Observed, Regardless Of The Department In Which The Condition Exists, The Employee Shall Report It Promptly To A Proper Authority And When Necessary Guard The Area.

### Some Reasons Why....

- Your Safety
- Your Crew's Safety
- The Public's Safety
- Company Policy
- Safety Manual

Reporting Hazardous Conditions Continued  
An Employee Who Receives A Report Of Any Hazardous Emergency Condition Shall Try To Obtain The Name Of The Informant, The Exact Location, And The Nature Of The Trouble/Hazard. The Employee Shall Immediately Refer This Information To The Person Having Responsibility For Such Matters.

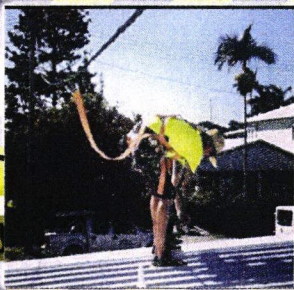


### Hazard Types

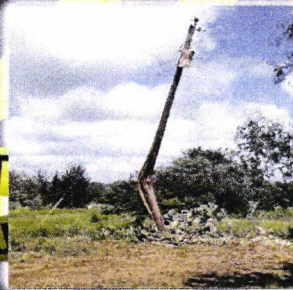
1. Obvious Hazards
2. Concealed Hazards
3. Developing Hazards
4. Transient Hazards

### No program means...

- Service Disruption
- Strained Public Relations
- Possible Litigation



Some people never realize that they are in danger from their actions.



Hazards can be created in many ways.

- Be Vigilant In Recognizing Hazards
- Don't Be Afraid To Turn In Suspicious Looking Problems.
- Use Common Sense
- If Any Question About Safety, Take Care Of The Problem ASAP.

## Clearance Requirements 2017 NESC Table 232-1



## Know Your Required Power Line Clearances



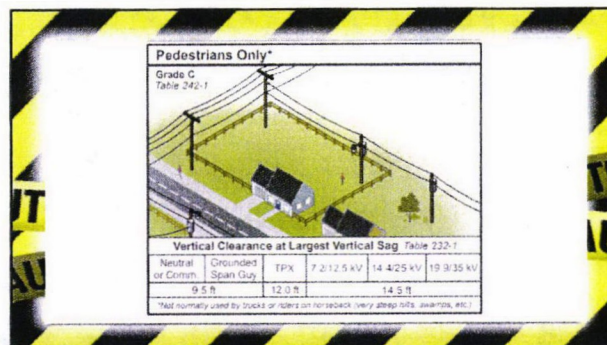
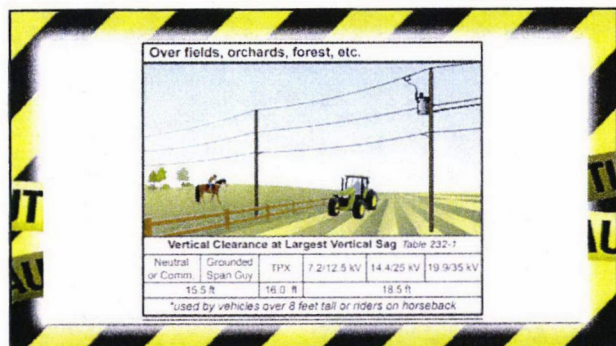
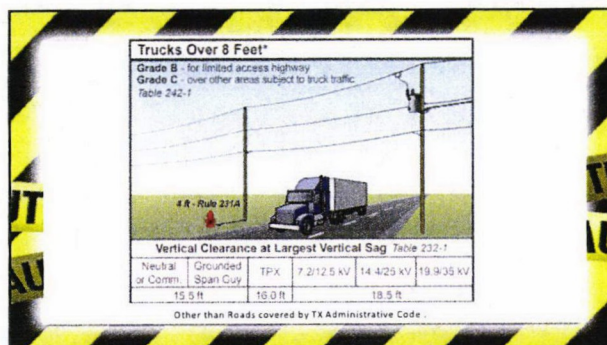
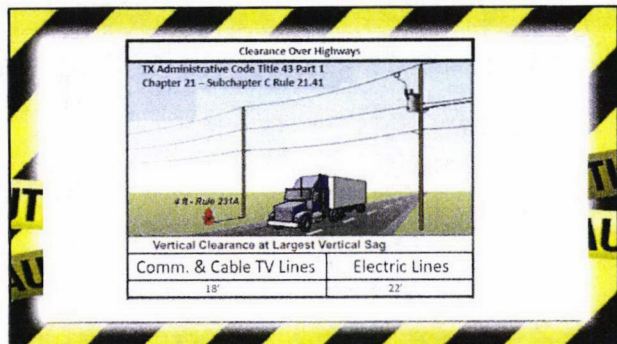
**Railroads\***  
Grade B  
Table 242-1

12 ft Rule 221C

Vertical Clearance at Largest Vertical Sag Table 232-1

Neutral or Comm.	Grounded Span Guy	TPX	7.2/12.5 kV	14.4/25 kV	19.9/35 kV
23.5 ft	24.0 ft			26.5 ft	

*\*Railroad company may require greater clearance*



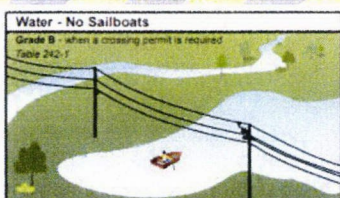


The NESC Clearance Requirements Are Different Depending On Whether Or Not The Waterway Is Suitable For Sail-boating.

Additionally, the NESC Publishes Separate Clearance Requirements For Areas That Are Posted For Rigging Or Launching Sailboats.

Where The Body Of The Water Is Not Suitable For Sailing Or Where Sailing Is Prohibited, The Minimum Clearance For Electrical Lines Is Always 17 Feet.

**Water - No Sailboats**  
 Grade 9 - when a crossing permit is required  
 Table 242-1



**Vertical Clearance at Largest Vertical Sag Table 232-1**

Neutral or Comm. Span Guy	TPX	7.2-12.5 kV	14.4-25 kV	19.9-35 kV
14.3 ft	14.5 ft	17.0 ft		

\*see NESC for sailboat clearances

In Waterways Suitable For Sailing, The NESC Clearance Requirement Changes Depending On The Surface Area Of The Body Of Water. The Larger The Body Of Water, The Higher The Required Clearance. Below Are The NESC Clearances For Waterways Suitable For Sailing:

- If The Surface Area Is Less Than 20 Acres, The Minimum Clearance Is 20.5 Feet;

#### Sailing

- If The Surface Area Is Between 20 And 200 Acres, The Minimum Clearance Is 28 Feet;
- If The Surface Area Is Between 200 And 2,000 Acres, The Minimum Clearance Is 34 Feet;
- If The Surface Area Is Over 2,000 Acres, The Minimum Clearance Is 40 Feet.

As With The Waterways Suitable For Sailing, NESC Clearances For Electrical Lines In Areas Posted For Rigging Or Launching Sailboats Change Depending On Surface Area Of The Body Of Water. Below Are The NESC Clearance Requirements For Land Or Water Areas That Are Posted For Rigging Or Launching Sailboats:

- If The Surface Area Is Less Than 20 Acres, The Minimum Clearance Is 25.5 Feet;

#### Rigging Or Launching Sailboats

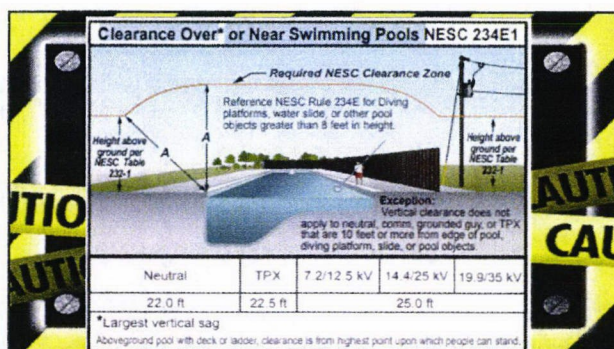
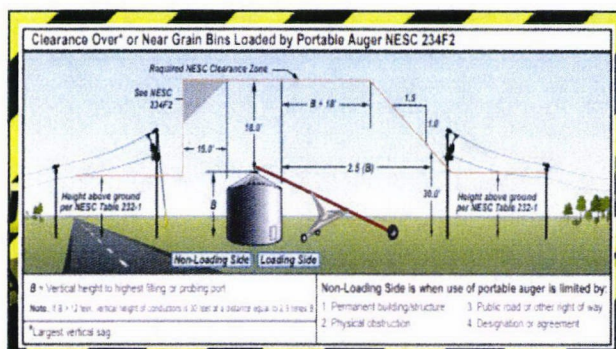
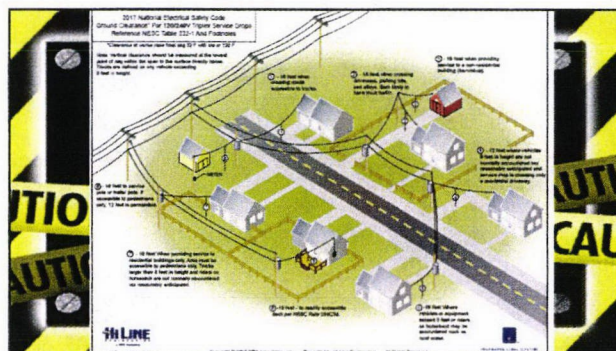
- If The Surface Area Is Between 20 And 200 Acres, The Minimum Clearance Is 33.5 Feet;
- If The Surface Area Is Between 200 And 2000 Acres, The Minimum Clearance Is 39.5 Feet;
- If The Surface Area Is Over 2000 Acres, The Minimum Clearance Is 45.5 Feet.

#### NESC

Clearances are Measured Based Upon The Highest Water Level.

If The Body Of Water Is Uncontrolled, The Clearance Is Measured Based Upon The Normal Flood Level.

The NESC Provides That, If Available, The Ten-year Flood Level May Be Assumed As The Normal Flood Level.





**Clearance Over\* or Near Billboards NESC 234C**

\*\*Horizontal clearance of phase conductor to be greater than 4.5 ft with 50 MPH wind.

	Neutral	TPX	7.2/12.5kV	14.4/25kV	19.9/35kV
A - Where personnel work	10.5 ft	11.0 ft		13.5 ft	
B - Other Surface	3.0 ft	3.5 ft		8.0 ft	
C - Horizontal**	4.5 ft	5.0 ft		7.5 ft	

\*Largest vertical sag

**Vertical Clearance Over\* Buildings NESC 234C**

\*\*Accessible is usually accessed. Do not need to use a portable ladder or special tools to gain access.

	Roof	Neutral	TPX	7.2/12.5kV	14.4/25kV	19.9/35kV
Accessible**	10.5 ft	11.0 ft		13.5 ft		
Non-Accessible	3.0 ft	3.5 ft		12.5 ft		

\*Largest vertical sag

**Horizontal Clearance Adjacent to Buildings NESC 234C**

\*\*Horizontal clearance of phase conductor to be greater than 4.5 ft with 50 MPH wind.

	Neutral	TPX	7.2/12.5kV	14.4/25kV	19.9/35kV
A - To Walls**	4.5 ft	5.0 ft		7.5 ft	
B - Accessible Areas**	4.5 ft	5.0 ft		7.5 ft	

**Summary of NESC Clearances to Communication Cables** See NESC for details and exceptions

30 inches is allowed if the communication messenger is bonded to the neutral throughout the service area. (See 235.5)

14 AWG, 12 AWG, 10 AWG, 8 AWG, 6 AWG, 4 AWG, 2 AWG, 1 AWG, 1/2 AWG, 1/4 AWG, 1/8 AWG, 1/16 AWG, 1/32 AWG, 1/64 AWG, 1/128 AWG, 1/256 AWG, 1/512 AWG, 1/1024 AWG, 1/2048 AWG, 1/4096 AWG, 1/8192 AWG, 1/16384 AWG, 1/32768 AWG, 1/65536 AWG, 1/131072 AWG, 1/262144 AWG, 1/524288 AWG, 1/1048576 AWG, 1/2097152 AWG, 1/4194304 AWG, 1/8388608 AWG, 1/16777216 AWG, 1/33554432 AWG, 1/67108864 AWG, 1/134217728 AWG, 1/268435456 AWG, 1/536870912 AWG, 1/1073741824 AWG, 1/2147483648 AWG, 1/4294967296 AWG, 1/8589934592 AWG, 1/17179869184 AWG, 1/34359738368 AWG, 1/68719476736 AWG, 1/137438953472 AWG, 1/274877906944 AWG, 1/549755813888 AWG, 1/1099511627776 AWG, 1/2199023255552 AWG, 1/4398046511104 AWG, 1/8796093022208 AWG, 1/17592186044416 AWG, 1/35184372088832 AWG, 1/70368744177664 AWG, 1/140737488355328 AWG, 1/281474976710656 AWG, 1/562949953421312 AWG, 1/1125899906842624 AWG, 1/2251799813685248 AWG, 1/4503599627370496 AWG, 1/9007199254740992 AWG, 1/18014398509481984 AWG, 1/36028797018963968 AWG, 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1/618970019642690137449562112 AWG, 1/1237940039285380274899124224 AWG, 1/2475880078570760549798248448 AWG, 1/4951760157141521099596496896 AWG, 1/9903520314283042199192993792 AWG, 1/19807040628566084398385987584 AWG, 1/39614081257132168796771975168 AWG, 1/79228162514264337593543950336 AWG, 1/158456325028528675187087900672 AWG, 1/316912650057057350374175801344 AWG, 1/633825300114114700748351602688 AWG, 1/1267650600228229401496703205376 AWG, 1/2535301200456458802993406410752 AWG, 1/5070602400912917605986812821504 AWG, 1/10141204801825835211973625643008 AWG, 1/20282409603651670423947251286016 AWG, 1/40564819207303340847894502572032 AWG, 1/81129638414606681695789005144064 AWG, 1/162259276829213363391578010288128 AWG, 1/324518553658426726783156020576256 AWG, 1/649037107316853453566312041152512 AWG, 1/1298074214633706907132624082305024 AWG, 1/2596148429267413814265248164610048 AWG, 1/5192296858534827628530496329220096 AWG, 1/10384593717069655257060992658440192 AWG, 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